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Document de treball n.11- 2015

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Edita:

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www.fcee.urv.es/departaments/economia/public_html/index.html
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Adreçar comentaris al Departament d'Economia / CREIP

Dipòsit Legal: T - 362 - 2015

ISSN edició en paper: 1576 - 3382
ISSN edició electrònica: 1988 - 0820

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When culture does (not) matter: role models and self-efficacy as drivers of entrepreneurial behavior

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Abstract: The correlation between facets of national culture and startup activities has received confirmation in empirical research while many mechanisms behind the correlation remain unclear. We study the interplay between the individualism-collectivism orientation of national culture, the incidence of entrepreneurial role models and self-efficacy understood as the perception of possessing relevant skills and knowledge to become a successful entrepreneur. We find that exposure to entrepreneurial role models offsets self-efficacy as a driver of entrepreneurial intentions. The effect is magnified by the individualistic character of the national culture.

Key words: entrepreneurial intentions, role models, self-efficacy, individualism, multi-level regressions

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1. Executive Summary

Understanding the formation of entrepreneurial intentions is important because intentions are the "best single predictor of an individual's behavior" (Fishbein & Ajzen, 1975, p. 369). Entrepreneurial intentions are determined in part by perceived self-efficacy (Krueger, Reilly, & Carsrud, 2000) which reflects the self-belief, willingness, and persistence to overcome the initial anxiety associated with the creation of a new start-up (Alvarez, DeNoble, & Jung, 2006). While it is widely acknowledged that the individual decision to engage in entrepreneurship needs to be understood within its context (Welter, 2011) surprisingly little is known as to how the confidence in one's own capabilities to start a business venture works in different environments (Mauer, Neergaard, & Linstad, 2009). Both the social and cultural environments as well as personal traits seem particularly influential for shaping entrepreneurial cognitive structures (Busenitz & Lau, 1996; Koellinger, Minniti, & Schade, 2007; Mitchell, Smith, Seawright, & Morse, 2000; Wennberg, Pathak, & Autio, 2013). Therefore, assessing the influence of the multiple layers of the individual's context on the process of intention-building seems necessary.

The objective of this paper is to extend current knowledge by developing and testing a conceptual framework of entrepreneurial intentions that includes aspects of the proximate and distal socio-cultural contexts. In particular, we analyze the well-established relationship between entrepreneurial self-efficacy and entrepreneurial intentions in the presence of socially-proximate role models. Additionally, we consider relevant characteristics of the national culture and introduce a triple interaction between national culture, role models and self-efficacy to study entrepreneurial intentions. We draw on Bandura's Social Cognitive Theory and the Institutional Theory to hypothesize the ways in which role models and national culture independently and jointly influence the strength of the relationship between entrepreneurial self-efficacy and intentions.

We base our analysis on the Global Entrepreneurship Monitor (GEM) surveys in 43 countries for 2009, combining it with Hofstede's index of individualism and data concerning the institutional and economic environment. We employ multi-level analysis to account for the hierarchical structure of the data. Our results suggest that both the proximate as well as the distal socio-cultural context independently and jointly affect the relationship between self-efficacy and entrepreneurial intentions. Our study makes contributions to entrepreneurial research and practice. We make a case in favor of considering the socio-cultural environment in research of entrepreneurial intentions. Specifically, we introduce the possibility of studying the joint influence of proximate and distal environments. Future research can extend this approach by using alternative and additional aspects of the individual's context. Moreover, evaluating the impact of self-efficacy on behavior in different settings could infuse policy decisions. Our empirical results show that role models boost intentions to start a business while at the same time they offset the effect of self-efficacy on entrepreneurial intentions. This effect is magnified in individualistic socio-cultural contexts.

2. Introduction

Granovetter (1985) points out that almost all economic activity is embedded in a social context. Although the argument has been used in the study of entrepreneurship at different levels of analysis (Thornton, 1999), untangling the way the context shapes individual behavior remains a challenge (Thornton, Ribeiro-Soriano, & Urbano, 2011; Welter, 2011). Executing this task becomes even more difficult when the multi-layered and nested nature of socio-cultural environment (Erez & Gati, 2004; Leung & Bhagat, 2005) is recognized. At the same time, while existing theory has accepted perceptions and attitudes as major antecedents of entrepreneurial intentions (Krueger et al., 2000), the influential role of the environment over these has been largely overlooked (Welter, 2011) with few exceptions

(Lim, Morse, Mitchell, & Seawright, 2010; Mitchell et al., 2000; Mitchell & Smith, 2002; Shinnar, Giacomin, & Janssen, 2012; Wennberg et al., 2013). This is rather unexpected because the proponents of the Social Cognitive Theory, the theoretical foundation for much of the entrepreneurial intention research, propose a triadic reciprocality between individual behavior, personal characteristics, and environmental influences (Bandura & Wood, 1989; Bandura, 1986; Lent, Brown, & Hackett, 1994). We subscribe to this idea and evaluate the influence of the individual's socio-cultural context on entrepreneurial intentions.

In the context of institutional theory, Williamson (1998, 2000) proposed a multi-layered structure of the institutional environment and acknowledged the influence of social embeddedness on economic behavior as argued by Granovetter (1985). The informal social context explicitly recognized by the institutional theory are a "set of moral, ethical, behavioral norms which define the contours and that constrain the way in which the rules and regulations are specified and enforcement is carried out" (North, 1984, p. 8). An additional element to this idea is brought by Mowday and Sutton (1993) who introduce the notion of the proximate and distal environment. Subsequently, Johns (2006) extends this line of thinking and hints at the cross-level effects of contexts, where situational variables at one level of analysis impact those at a different level. In particular, the work of Welter (2011) calls attention to the importance of a multi-layered approach for the study of entrepreneurship, considering the proximate social interactions and the distal political and cultural systems. Drawing on this line of argumentation, we conjecture that entrepreneurial intentions can be properly understood only if the interplay of the proximate and distal institutional environment is accounted for.

In a similar vein, the entrepreneur is increasingly seen as embedded in social networks (Aldrich & Zimmer, 1986; Hoang & Antoncic, 2003) in which daily exchanges take place. Previous research on proximate social environments such as social networks

has mainly focused on the exchange of resources and information, largely overlooking the influence of network actors such as role models, on cognitive structures (Autio, Pathak, & Wennberg, 2013; Krueger et al., 2000). At the same time, it is acknowledged that entrepreneurial cognitive structures are shaped not only by personal traits but also by aspects of the proximate social environment (Mitchell et al., 2000), which influence can be either direct or indirect (Whetten, 2009). We contribute to this line of research and study the influence of entrepreneurial role models on entrepreneurial intentions by analyzing the way in which they interact with self-efficacy.

On the other hand, the influential work of Max Weber (1930) suggests that the varying predisposition among societies towards entrepreneurial behavior is rooted in different cultural values. This assertion has since been repeatedly studied and in the entrepreneurship literature it is now virtually undisputed that culture profoundly impacts all facets of entrepreneurship in societies (Autio et al., 2013; De Clercq, Lim, & Oh, 2013; Hayton, George, & Zahra, 2002; Li & Zahra, 2012; Shinnar et al., 2012; Stephan & Uhlaner, 2010). Results, however, are ambiguous when the mechanisms behind the correlations are under study (Hayton et al., 2002; Hechavarria & Reynolds, 2009). In fact, cognitive mechanisms, such as self-efficacy, not only vary across cultures (Earley, Gibson, & Chen, 1999; Hayton et al., 2002; Mitchell et al., 2000) but national cultures impact mental patterns such as self-efficacy (Adler, Doktor, & Redding, 1986). Therefore, understanding entrepreneurial intentions hinges on the indirect influence of culture through the forming of perceptions, including that of self-efficacy.

In essence, entrepreneurship is a social phenomenon (Shapero & Sokol, 1982) and the socio-cultural contexts in which entrepreneurial behavior is embedded are "intertwined and cut across levels of analysis" (Welter, 2011, p. 174). This complexity requires a look at the environment as multi-layered where the distal and the proximate contexts interact. We hypothesize these interactions by drawing on the Social Cognitive

Theory, which states that the interplay of personal, behavioral and environmental influences determines human functioning (Bandura, 1986). Specifically, we analyze the influence of role models embedded in varying cultural settings, proposing a three-way interaction with self-efficacy, to explain entrepreneurial intentions.

The rest of the paper is structured as follows. In the next section, we review existing literature and subsequently develop our hypotheses that are tested empirically with the GEM data for the year 2009. We focus on 43 countries holding a total of 87,000 individual observations. We employ multi-level modeling to account for the hierarchical structure of the data and find that while exposure to role models generally produces a positive influence on entrepreneurial intentions its effect is diminished for individuals with high levels of self-efficacy. Our results imply that this effect is stronger in individualistic environments.

3. Contextualizing entrepreneurial intentions – the indirect influence of social norms

Deeply rooted in psychological antecedents (Hindle, Klyver, & Jennings, 2009), intentions are a cognitive state that precedes action (Krueger, 2005) and "[s]ince much of human behavior appears to be under volitional control, … the best single predictor of an individual's behavior will be a measure of his intention to perform that behavior" (Fishbein & Ajzen, 1975, p. 369). Entrepreneurship theory has come up with a wide range of factors and their combinations influencing the intention to become an entrepreneur such as personal traits, attributes, orientations, background, experience and current employment situation (Arenius & Minniti, 2005; Fitzsimmons & Douglas, 2011; Krueger et al., 2000; Kuckertz & Wagner, 2010; Laspita, Breugst, Heblich, & Patzelt, 2012; Lee, Wong, Foo, & Leung, 2011; Zellweger, Sieger, & Halter, 2011).

As an antecedent of entrepreneurial intentions entrepreneurial self-efficacy appears to play a particularly important role (Ajzen, 1991; Barbosa, Gerhardt, & Kickul, 2007; Boyd & Vozikis, 1994; Krueger et al., 2000; Shapero & Sokol, 1982; Zhao, Seibert, & Hills, 2005). Self-efficacy represents the individual's judgment of her ability to perform a certain task within a specific domain (Bandura, 1982). It relates to the choice of activities a person pursues, the effort invested, the persistence applied to perform these activities and the reaction when facing obstacles (G. Chen, Gully, & Eden, 2004; Lent et al., 1994). In other words, individuals with a high level of entrepreneurial self-efficacy not only have higher entrepreneurial intentions but are also more likely to engage in business startups and persist longer in doing so. Empirical research has provided ample evidence for this relationship (Chen, Greene, & Crick, 1998; Douglas, 2013; Fitzsimmons & Douglas, 2011; Sequeira, Mueller, & McGee, 2007; Zhao et al., 2005).

At the same time, scholars have advocated that economic behavior is facilitated or constrained by different social, cultural, economic, institutional and geographical contexts (Baumol, 1990; Granovetter, 1985; Johns, 2006; Mowday & Sutton, 1993; North, 1990; Scott, 2001; Weber, 1930; Williamson, 1975). Although researchers have called for contextualizing the study of entrepreneurial behavior and activities (Baumol, 1990; Gartner, 1995) this remains a pending task and one that deserves special attention because of its complexity (Thornton et al., 2011; Welter, 2011). The institutional perspective on entrepreneurship advocates that entrepreneurial behavior depends on the individual's relationship with her external environment (Thornton et al., 2011; Veciana & Urbano, 2008; Welter & Smallbone, 2011) and allows incorporating both macro (e.g. culture) and micro (e.g. organizational or family mindsets) influences (Bruton, Ahlstrom, & Li, 2010), as well as combining social and cultural elements (Thornton et al., 2011; Welter, 2011).

The present work focuses on the normative institutional rules (Scott & Davis, 2007) and socially constructed symbols (Scott, 2001) that consist of rules and logics as of what is

perceived to be "appropriate" behavior or way of thinking (Bruton et al., 2010). In this context, social norms, defined as unwritten rules of conduct within a group (Elster, 1989), indirectly influence entrepreneurial behavior. Drawing on Social Learning Theory, Bandura (1986) suggests that self-efficacy is somewhat socially constructed. In his words: "People can give up trying because they lack a sense of efficacy in achieving the required behavior, or they may be assured of their capabilities but give up trying because they expect their behavior to have no effect in an unresponsive environment or to be consistently punished" (Bandura, 1977: 204–5).[1]

Against this backdrop, we perform a comprehensive study of interacting layers of context for the specific case of entrepreneurial intentions and the cognitive mechanisms that shape them, focusing on variables that have received attention in the entrepreneurship literature. We argue that the norms of the close social environment as well as of the more distal, cultural context alter the effect entrepreneurial self-efficacy has on the intentions to start a new business venture.

4. Hypotheses

In this section we develop a set of hypotheses that anticipate the relationship between self-efficacy and entrepreneurial intentions. In doing so, we introduce relevant moderating elements of the proximate and distal context such as entrepreneurial role models and the individualistic orientation of the national culture.

[1] This relationship goes in line with Vroom's Expectancy Theory (1964) which proposes that an individual will behave in a certain way not only because she expects a specific outcome but also because the expected outcome is desirable. Fitzsimmons and Douglas (Fitzsimmons & Douglas, 2011), in a study of some 400 students in four countries provide first empirical evidence of an interaction between desirability and feasibility in their effect on entrepreneurial intentions. However, while these authors focus on the hedonistic perceived utility which reflects the personal favorability, our study focuses on the perceived legitimacy reflecting the social value of a specific behavior (Radu & Redien-Collot, 2008).

4.1. Role models as a transmitter of social norms

Entrepreneurship is progressively more understood as a social phenomenon (Aldrich & Zimmer, 1986; Hoang & Antoncic, 2003) where the process of founding a business venture is rooted in social interactions (Newbert & Tornikoski, 2011, 2012). Hence, since the mid-1980s the benefit of an entrepreneur's social networks has been increasingly recognized (Klyver, Hindle, & Meyer, 2007). As part of the social sphere, role models are related to vocation choices (Quimby, Wolfson, & Seyala, 2007) and they are ascribed with a positive motivation in the pursuit of career objectives (Gibson, 2003). In the case of potential entrepreneurs, role models serve as a good source of information. They pass on knowledge about how things are done, where resources can be obtained or about potential success and failure factors (Greve & Salaff, 2003; Scherer, Adams, Carley, & Wiebe, 1989). As part of an individual's social network they may also provide necessary resources (Anderson & Miller, 2003; Greve & Salaff, 2003; Ribeiro-Soriano & Urbano, 2009). In essence, the positive direct impact of role models on entrepreneurial activities is acknowledged (Bosma et al., 2012; Lafuente, Vaillant, & Rialp, 2007; van Auken, Fry, & Stephens, 2006).

Hypothesis1: The presence of an entrepreneurial role model positively influences entrepreneurial intentions.

At the same time, some studies have failed to provide empirical support for a positive direct relationship between role models and entrepreneurial career choices (see for example Carsrud, Gaglio, & Olm, 1987). Instead, an indirect effect through attitudinal variables is suggested (BarNir, Watson, & Hutchins, 2011). The way in which entrepreneurial role models positively influence individual perceptions is succinctly put by Veciana (1980): "If (s)he can, why can't I?"[2] Role models can do more than mere provision of potentially lacking information and resources. They influence an individual's attitudes

[2] It has to be noted that role models can also prevent individuals from a specific career choice (Gibson, 2004). In this study, we neglect the presence of these negative role models and focus on positive role models.

and perceptions through different, sometimes indirect, channels. For example, according to Bandura(1971, 1986) individuals are attracted to role models who incite or help them acquire new skills, perform tasks and adopt norms through both observational (Gibson, 2004) and supportive learning (Nauta & Kokaly, 2001). As such, role models affect entrepreneurial intentions through their influence on an individual's attitudes towards entrepreneurship (Krueger, 1993; Scherer et al., 1989). In particular, the Social Cognitive Theory posits that role models can exercise a great effect on individuals when forming their self-concept (Akerlof & Kranton, 2013) because they provide a reference for judgment (Oettingen, 1995).

According to the role identification theory (Kohlberg, 1963), role models may influence individual's preferences (Witt, 1991) or initiate imitative behavior if this is regarded as rewarding (Kagan, 1958). As such, role models provide clues as to whether or not entrepreneurship is a socially rewarding career. At the same time, they – as participants in the individual's proximate social environment – shape social norms regarding entrepreneurial behavior. In fact, several authors have pointed out that values transmitted by "reference" people can influence perceived behavior or self-efficacy (Cooper, 1993; Scherer, Brodzinski, & Wiebe, 1991). As a result, we propose that the presence of an entrepreneurial role model exercises a moderating effect on the relationship between perceived self-efficacy and entrepreneurial intentions:

Hypothesis 2: The presence of an entrepreneurial role model moderates the effect of perceived self-efficacy on entrepreneurial intentions.

4.2. Individualism and entrepreneurial intentions

Culture is defined as a set of shared beliefs, values and expected behaviors (Hofstede, 1980). As such, it refers to "the collective programming of the mind that distinguishes the members of one group or category of people from another" (Hofstede,

2001, p. 9). Given that values typically are determined at an early stage in life (Hofstede, 1980), they are relatively enduring over time and tend to drive behavioral patterns consistent with the cultural context (Mueller & Thomas, 2000). As a consequence, it is little surprising that since the influential work of Max Weber (1930), the assertion that the varying predisposition among societies towards entrepreneurial behavior is rooted in different cultural values has been repeatedly studied.

Empirical research mostly based on Hofstede's (1980) cultural dimensions (Hayton et al., 2002) provides evidence that cultural factors can enhance or pose barriers to entrepreneurial activity within a country or a region (e.g. Davidsson & Wiklund, 1997, 2001; Davidsson, 1995; Kreiser, Marino, Dickson, & Weaver, 2010; Mueller & Thomas, 2000). In this research one cultural facet seems to be of particular relevance: the individualism-collectivism cleavage constitutes the "profound structure" of cultural differences (Triandis & Suh, 2002) and represents the single-most powerful dimension in cross-cultural psychology (Oyserman, Coon, & Kemmelmeier, 2002). Additionally, individualism is one of the dimensions which are consistently studied in competing frameworks for cross-cultural analysis such as those of Hofstede's (1980), Schwartz and Bilsky's (1987), Trompenaars' (Trompenaars, 1998) and GLOBE's (Smith & Bond, 1998; Smith, Bond, & Kagitcibasi, 2006). Individualism is associated with the notion that individuals seek and pursue personal goals (Hofstede, 1980). Individualistic values such as those of personal freedom and personal sense of accomplishment (Hofstede, 1980) are directly related to entrepreneurial behavior. Additionally, in individualistic societies opportunity recognition is likely to be biased towards opportunities that individuals (as opposed to groups) can take advantage of (Mitchell et al., 2000). The notion that individualism as one specific and extremely relevant cultural dimension favors entrepreneurship has received empirical support (McGrath, MacMillan, & Scheinberg, 1992; Mueller & Thomas, 2000; Shane, 1992; Wennekers, Uhlaner, & Thurik, 2002). We

therefore propose a positive relationship between individualistic national values and entrepreneurial behavior.

Hypothesis 3: The individualistic values of a nation favor individual's entrepreneurial intentions.

Cognitive mechanisms, such as self-efficacy, not only vary across institutional contexts (Earley et al., 1999) which comprise culture, political and economic systems (Welter, 2011). National "rules of the game" (North, 1990) impact these individual cognitive mechanisms as well (Adler et al., 1986). Specifically, cultural characteristics shape the standard of behavior through imposing positive or negative conditions for that specific behavior (Morrison, 2000). The quest for freedom and autonomy in individualistic cultures is likely to shape a normative system where entrepreneurship is a culturally legitimized behavior and where the perception that it is desirable, proper and appropriate is fully crystallized (Suchman, 1995). On the contrary, laws and norms in collectivistic cultures often limit private property and idea protection, potentially discouraging individuals from engaging in business ventures by affecting the perceived feasibility of such an endeavor (Mitchell et al., 2000).

Hofstede and colleagues (2004) pointed out that the influence of national culture on self-employment maybe twofold: a supportive environment shaped by the national individualistic culture leads "socially integrated" individuals into self-employment. Whereas in less supportive cultures such as the collectivistic ones "socially dissatisfied" individuals are more likely to be self-employed. Such an act of institutional and behavioral misfit has been suggested and empirically confirmed in the context of female entrepreneurship (e.g. Klyver, Nielsen, & Evald, 2013). However, Bandura (1977) points out that arguments like this one could only give a partial explanation of the phenomenon because self-efficacy alone does not determine intentions, let alone entrepreneurial behavior. Instead, intentions are stronger predictors of behavior when the expectation to

be able to perform a specific behavior is combined with a behavioral outcome that is socially desirable. Based on the conjecture that individualistic nations are more likely to foster a supportive environment for entrepreneurship, we posit that individualism positively moderates the relationship between self-efficacy and entrepreneurial intentions.

Hypothesis 4: The individualistic values of a nation enhance the relationship between self-efficacy and entrepreneurial intentions.

4.3. Interacting contexts

A small set of empirical studies has investigated the impact of national culture on the social dimension of entrepreneurship, "suggesting a degree of generic universal entrepreneurial behavior, and some heterogeneity, highlighting the importance of cultural differences" (Dodd & Patra, 2002: 119). These studies point to a potential moderation of culture in the relationship between aspects of social context and entrepreneurial behavior (Klyver et al., 2007). Collectivistic cultures are thought to provide a more appropriate institutional setup for role models and other mechanisms for social support to grant necessary resources for setting up a business venture (Siu & Lo, 2011). Moreover, the importance of the social embeddedness in collectivistic contexts may increase the influence of others (e. g. role models) in an individual's social network in order to create a business venture (Aldrich & Cliff, 2003). Specifically, Tiessen (1997) suggests that resource acquisitions in individualistic nations is likely to be based on contractual relationships whereas collectivistic cultures emphasize to a greater extent relational ties and friendship. Moreover, people in individualistic cultures are expected to rely more on their own abilities than on the thoughts of others (Singelis, 1994). We, therefore, posit that the influence of the entrepreneurial role model is stronger for an individual's decision to engage in entrepreneurial activity in collectivistic cultures than in individualistic ones.

Hypothesis 5: The individualistic values of a nation suppress the positive influence of an entrepreneurial role model on entrepreneurial intentions.

The above hypothesis has a cognitive dimension that is worth exploring. Erez and Earley (1993) suggest that individualists – categorized by the culture they come from – build their self-efficacy relying on their own performance while collectivists rather base their environmental sampling on information derived from their in-group. Accordingly, Oettingen (1995) proposes that in collectivistic cultures the self-appraisal of efficacy derives from one's in-group beliefs. For example, comparing Taiwanese and American students, Mau (2000) concludes that Americans tended to employ a rational career decision-making process while Japanese conformed to group norms. Based on the assertion that in collectivistic cultures people focus on norms, obligations and duties rather than on personal attitudes, needs and rights as guidance for their social behavior, Bontempo and Rivero (1992) propose that in individualistic countries, personal attitudes are more likely to predict intentions towards behavior than social norms. This result is confirmed by Singelis (1994).

The greater reliance on the opinion, norms, values and information from the in-group in collectivistic nations for the formation of identity (Thiederman, 1991) may provide the individual with an act of institutional disintegration: counting with an entrepreneur in one's social network is likely to positively alter the social legitimacy of entrepreneurship, at least with respect to the social group the individual belongs to. As a result, in more individualistic nations, the positive effect of a favorable socio-cultural environment is predicted to magnify the interaction effect of self-efficacy and role models on entrepreneurial intentions.

Hypothesis 6: The individualistic values of a nation positively influence the relationship between the available role models and self-efficacy to explain entrepreneurial intentions.

5. Empirical framework

Given the hierarchical nature of the data – individual-level data is embedded in country-level data – we employ a multilevel analytical method. This allows controlling for clustering of the individual data per country. Failure to do so would violate the assumption of independent observations (Snijders & Bsoker, 2012) and lead to biased standard errors and unreliable regression coefficients (Rabe-Hesketh & Skrondal, 2012; Raudenbusch & Bryk, 2002). Additionally, we hereby avoid the individualistic fallacy of ignoring the broader context within which individuals are embedded, often present in studies of entrepreneurial behavior (Stenholm, Acs, & Wuebker, 2013) while at the same time bypassing the ecological fallacy which assumes that variables at a collective level, such as that of a nation, are directly reflected in individual behavior (Peterson, Arregle, & Martin, 2012).

Since the dependent variable is dichotomous (*entrepreneurial intentions*), we use a logistic regression with random intercepts that vary across countries. We observe a binary indicator, Y_{ij}, constructed from a survey question that reveal individuals' intentions to open a business in the near future, where

$$Y_{ij} = \begin{cases} 1 & \text{si} \quad Y_{ij}^{*} > 0 \\ 0 & \text{c.c.} \end{cases} \qquad (1)$$

with our outcome variable, Y_{ij}^{*}, being a non-observable latent variable that represents the propensity of individual *i* residing in country *j* to open a business and which is determined by the following linear relationship:

$$Y_{ij}^{*} = \beta_{0j} + \sum_{k=1}^{K} \beta_{kj} X_{ijk} + \varepsilon_{ij}, \qquad (2)$$

X_{ijk} are individual characteristics, β_{oj} and β_{kj} are the coefficients to be estimated and ε_{ij} is a random error term. If we assume the logistic distribution for ε_{ij} then:

$$P(Y_{ij}=1)=P(Y_{ij}^{*}>0)=P\left(\varepsilon_{ij}<\beta_{0j}+\sum_{k=1}^{K}\beta_{kj}X_{ijk}\right)=\frac{\exp\left(\beta_{0j}+\sum_{k=1}^{K}\beta_{kj}X_{ijk}\right)}{1+\exp\left(\beta_{0j}+\sum_{k=1}^{K}\beta_{kj}X_{ijk}\right)}, \qquad (3)$$

The hierarchical structure of the data into two levels implies that in the first level n individuals (i=1,..,n) are clustered in J countries (j=1,...,J) in the second level. In the first level, the causal relationship is determined by equation (2). Without clustering at the country level, we could estimate the model with a standard logistic regression and in this case β_{oj} and β_{kj} would be β_o and β_k . However, applying a multilevel regression allows β_{oj} and β_{kj} to be modeled as outcomes that depend on a number of contextual factors which pick-up information regarding the second level, i.e. countries; therefore, β_{oj} and β_{kj} are treated as random variables. In our case, we consider the simplest case, where the slopes β_{kj} are assumed to be fixed but the intercept β_{oj} is assumed to be determined as follows:

$$\beta_{0j}=\gamma_{00}+\sum_{q=1}^{Q}\gamma_{0q}Z_{jq}+u_{0j} \qquad (4)$$

where γ_{00} is a fixed intercept, Z_{qj} a set of contextual factors that only vary at country level, γ_{0q} and γ_{k0} are a set of fixed parameters and u_{0j} are specific country random intercepts. Under these considerations, the linear relationship expressed in (2) now reads as follows:[3]

$$Y_{ij}^{*}=\gamma_{00}+\sum_{q=1}^{Q}\gamma_{0q}Z_{jq}+\sum_{k=1}^{K}\beta_{0k}X_{ijk}+\left(u_{0j}+\varepsilon_{ij}\right). \qquad (5)$$

[3] The variables in equation (5) are described in the next section.

6. The data

We construct a dataset to test the proposed hypotheses relying on several sources. Individual-level data about entrepreneurial activity and its determinants is taken from the Global Entrepreneurship Monitor's (GEM's) Adult Population Survey (Reynolds et al., 2005). This dataset, though characterized by some limitations, is one of the few standardized datasets on entrepreneurial activity that enables cross-national entrepreneurship research. It has been used in recent investigation (Aidis, Estrin, & Mickiewicz, 2008; Anokhin & Schulze, 2009; De Clercq et al., 2013; Estrin, Korosteleva, & Mickiewicz, 2013; Estrin, Mickiewicz, & Stephan, 2013; Klyver et al., 2013; Kwon & Arenius, 2010; Stenholm et al., 2013; Thai & Turkina, 2013). We use the sample of 2009 covering 43 countries and about 87,000 observations. [4] With very few exceptions, the data for each country contains a representative sample of the work-aged population of 2,000 or more individuals. Appendix 1contains the list of countries included in the sample and the respective number of respondents.

In order to determine how the cultural context influences entrepreneurial behavior, we adopt the framework developed by Hofstede (1980, 2001). Hofstede's value survey, despite all its limitations (e.g. Kirkman, Lowe, & Gibson, 2006; McSweeney, 2002), is the most widely used framework for cross-cultural studies (Chand & Ghorbani, 2011). Subsequent studies indicate a high correlation with the original Hofstede dimensions when replicated (Sondergaard, 1994).

Apart from the cultural aspect, we account for the stage of development of the country because it affects individual entrepreneurial behavior. Variables that characterize the macroeconomic and institutional environment of a country are taken from the World Development Indicators (World Bank), the Doing Business Index (World Bank), and the

[4] We tested the models on the pooled sample of data for 2009 and 2010 and the results remain the same. Because of the substantial increase in the demand for computational resources and the absence of new insights we estimated marginal effects and report results for 2009 only.

Global Competitiveness Report (World Economic Forum). Following earlier research (Autio et al., 2013; Estrin, Korosteleva, et al., 2013; Estrin, Mickiewicz, et al., 2013; Klyver et al., 2013; Stenholm et al., 2013) we introduced these control variables with a time lag. The list of variables, their description, sources and main statistics are presented in Table 1.

6.1. Dependent variable

Entrepreneurial intentions is the dependent variable of interest. Deeply rooted in psychological antecedents (Hindle et al., 2009), intentions are a cognitive state that precedes action (Krueger, 2005) and as such are believed to (imperfectly) predict behavior (Ajzen, 1991). Entrepreneurial intentions are measured as a dummy variable that takes value of 1 if the respondent answers affirmatively to the following question "Within the next three years, do you expect to start alone or with others a new business, including any type of self-employment?" and 0, otherwise. The approach to measure entrepreneurial intentions by a single-item proxy has been widely accepted (Díaz-García & Jiménez-Moreno, 2010; Graevenitz, Harhoff, & Weber, 2010; Krueger et al., 2000; Veciana, Aponte, & Urbano, 2005) and this dichotomous variable has been used by researchers who explore the GEM database (Guzmán-Alfonso & Guzmán-Cuevas, 2012; Klyver et al., 2013).

6.2. Key explanatory variables

There are three independent variables of interest. These are e*ntrepreneurial role model* (knowent), *self-efficacy* (suskill) and *individualism* (idv). The first two variables vary at individual level and are considered in the matrix X_{ijk} in equation (5). The latter variable varies at country level and is considered in the set of contextual factors (Z_{jq}).

Entrepreneurial role model (knowent) is a dummy variable that takes value of 1 if the respondent answers affirmatively to the question: "Do you personally know someone who started a business in the past two years?" and 0, otherwise. While in some studies (e.g.

Klyver et al., 2007) this variable has been used as a proxy for an individual's social network, we see this interpretation as overreaching and interpret the variable as indicative for the presence or absence of an entrepreneurial role model. We acknowledge the limitation of this variable as it does not indicate whether the role model, if present, is successful or not. However, it has been established that the presence of a role model far outweighs the importance of the role model's specific performance (Scherer et al., 1989). Additionally, this interpretation of the variable has been adopted in previous studies (for example, Lafuente et al., 2007).

Self-efficacy (suskill) is measured as a dummy variable that takes value of 1 if the respondent answers affirmatively to the following question "Do you think to possess the knowledge, skills and experience to start a new business?" and 0, otherwise. Following Bandura (1977), who advocates that self-efficacy should be focused on the specific context or activity domain, we argue that the employment of an entrepreneurial self-efficacy measure as opposed to a general self-efficacy measure will generate better predictive results (Pajares, 1996). However, we acknowledge that the dichotomous variable employed in this study is limited in that it does not reflect different dimensions of entrepreneurial self-efficacy (Barbosa et al., 2007; McGee, Peterson, Mueller, & Sequeira, 2009). Nevertheless, this variable has been widely adopted by researchers (Bosma & Schutjens, 2011; Estrin, Korosteleva, et al., 2013; Guzmán-Alfonso & Guzmán-Cuevas, 2012).

Individualism (idv): We rely on Hofstede's value survey to measure individualism. In his original work, Hofstede defines individualism as the degree of interdependence a society maintains among its members (Hofstede, 1980). A higher score on this index is indicative of a society in which people are supposed to look after themselves and their direct family and these societies are classified as more individualistic.

Table 1

Data description and sources.

Variable	Description	Type	Level	Source
Dependent				
futsup	Within the next three years, do you expect to start alone or with others a new business, including any type of self-employment? *1 = yes 0 = otherwise*	binary	Individual	GEM
Explanatory				
knowent	Do you personally know someone who started a business in the past two years?" *1 = yes 0 = otherwise*	binary	Individual	GEM
suskill	Do you think you possess the knowledge, skills and experience to start a new business? *1 = yes 0 = otherwise*	binary	Individual	GEM
idv	Cultural dimension which indicates the level of individualism in a country	Index (1 - 100)	Country	Hofstede
Control Variables				
fearfail	Fear of failure would prevent you from starting a new business? *1 = yes 0 = otherwise*	binary	Individual	GEM
opport	In the next 6 months there will be good opportunities for starting a business in the area where you live? *1 = yes 0 = otherwise*	binary	Individual	GEM
age	The exact age of the respondent at the time of the interview	continuous	Individual	GEM
male	*1 = male 0 = women*	binary	Individual	GEM
educ	Identifies the highest degree obtained *primary, some secondary, secondary degree, post secondary, graduate level*	categorical	Individual	GEM
occupation	Identifies the occupation at the moment of the survey *full-time employed, part-time employed, retired or disabled, full-time homemaker, student, not working or others, self-employed*	categorical / continuous	Individual / Individual	GEM / GEM
GDPpc	GDP per capita at purchasing power parity (current international $)	continuous	Country	World Bank Development Indicators
GDPgrowth	GDP growth in %	continuous	Country	World Bank Development Indicators
enroll_primary	Enrollment in Primary School in % of total Population	continuous	Country	World Bank Development Indicators
enroll_secondary	Enrollment in Secondary School in % of total Population	continuous	Country	World Bank Development Indicators
distancetofrontier	This measure shows the distance of each economy to the "frontier." The frontier represents the highest performance observed or each of the indicators across all economies measured in Doing Business since the inclusion of the indicator.	Index (0 - 100)	Country	World Bank Doing Business
foreign ownership	Prevelance of foreign ownership in the country	Likert Scale (1-7)	Country	The World Economic Forum Global Competiveness Report

Sources: Global Entrepreneurship Monitor (2009), World Bank Development Indicators (2004-2008), World Bank Doing Business (2004-2008), World Economic Forum Global Competitiveness Report (2004-2008)

6.3 Control variables

The empirical test of the proposed hypotheses compels the use of control variables at both individual as well as country level. At the individual level (X_{ijk}), we include six control variables*: Fear of failure* (fearfail), *Opportunity Perception* (opport)*, Age* (age)*, Gender* (male)*, Formal Education* (educ)*,* and *Occupation* (occupation).

We include two individual perceptual variables (X_{ijk}) which are shown to affect entrepreneurial intentions (Arenius and Minniti,2005). *Opportunity Perception* is a dummy variable that takes value of 1 if the individual expects good business opportunities in the next six months in his/her area of residence. *Fear of failure* is reported to affect levels of entrepreneurship (Weber and Williman, 1997). We, therefore, include a dummy variable taking value of 1 if for the individual fear of failure would prevent him/her from starting a new business and 0, otherwise.

Following previous research (Johansson, 2000; Langowitz & Minniti, 2007; Singh & Verma, 2001), we include the following four demographic variables that potentially influence entrepreneurial intentions: *Age, Gender, Formal education* and *Occupation.* They are explained in Table 1.

At the country level (Z_{qj}) we account for the general economic context related to the process of creation of business ventures. We took the average value of the selected control variables between 2005 and 2008, four years prior to the collection of the individual-level data. Several authors have reported a negative impact of economic development on entrepreneurship (Kuznets, 1971) with a number of works pointing towards a U-shaped trend (Carree, van Stel, Thurik, & Wennekers, 2002; van Stel, Carree, & Thurik, 2010). We, therefore, include GDP per capita at purchasing power parity (gdppercap) and GDP growth (gdppercap_growth) as two variables representing the economic development stage of the country. Variables related to the country's human capital also reflect the economic development of a nation because human capital is accumulated in the structural

transformation process of economic development (Syrquin, 1988). Enrollment in primary (primaryenroll) and secondary education (secondaryenroll) are, therefore, included as controls. The regulative environment has continuously been found to affect entrepreneurship (e.g. Ardagna & Lusardi, 2008). We include *distance to frontier* (distancetofrontier), an index by the World Bank that measures the distance of a country to the best in class performance over all indicators included in the "Doing Business" initiative. Additionally, the prevalence of foreign firms taken from the "Global Competitiveness Report" of The World Economic Forum is included (foreignownership), thus accounting for potential spill-overs generated by foreign direct investments (Görg & Strobl, 2005).

7. Results

7.1 Descriptive statistics

In Table 2 we report the descriptive statistics at the individual level. We include comparative statistics differentiating between more individualistic versus more collectivistic countries[5].

Table 2 reveals that more than 10% of the population across all countries show entrepreneurial intentions, with a statistically significant higher proportion in collectivistic countries. More than one third of the sample population personally knows an entrepreneur. Again, this rate is significantly higher for collectivistic societies. We can observe that more than half of the population believes to possess the necessary knowledge, skills and experience to start a new business venture, with a significantly higher rate for collectivistic countries.

[5] We based our division into "more individualistic" versus "more collectivistic" on the mean of the individualism score of all countries included in Hofstede´s (1980) original research.

Table 2
Descriptive statistics and comparisons at individual-level.

	Total Sample		More Individualistic (1)		More Collectivistic (2)			
Variable	**Mean**	**S.D.**	**Mean**	**S.D.**	**Mean**	**S.D.**	**Diff: (2)-(1)**	**test statistic**
Dependent								
futsup	0.1190	0.3238	0.0645	0.0009	0.1623	0.0012	0.0978	59.26
Explanatory								
knowent	0.3618	0.4805	0.2973	0.0022	0.4003	0.0018	0.103	34.61
suskill	0.5269	0.4993	0.4724	0.0024	0.5595	0.0019	0.0871	27.86
Control Variables								
fearfail	0.3822	0.4859	0.3274	0.0023	0.4151	0.0019	0.0877	28.83
opport	0.2901	0.4538	0.2531	0.0023	0.3113	0.0018	0.0582	19.19
age	44.4	15.22	47.83	0.0608	41.66	0.0478	-6.17	-80.95
male	46.9	0.499	0.446	0.0019	0.4872	0.0017	0.0412	16.31
Post-secondary education or higher	0.3534	0.478	0.3959	0.0019	0.3205	0.0016	-0.0754	-30.85

Note: For proportions the test statistics follows a normal distribution. For means the test statistics follows a t-student distribution.

6.2. Regression results

Our empirical results are presented in Table 3. We report both the coefficients and the marginal effects calculated at the means of the other variables of our multi-level logistic regression for each of the explanatory variables. We report several model specifications to assess the robustness of the results. The dependent variable in all models is *Entrepreneurial intentions*.

As advanced by *Hypothesis 1*, we find evidence of statistically significant and positive correlation between the presence of entrepreneurial role models (knowent) and entrepreneurial intentions (*Entrepreneurial intentions*). The marginal effect of knowing an entrepreneur on entrepreneurial intentions is estimated to be 6.3 percentage points when all individual-level and environmental variables are taken into account (Model 5). Additionally, the expected positive and statistically significant correlation between entrepreneurial intentions and self-efficacy (suskill) is confirmed. We estimate the marginal effect to be 11.4 percentage points when all individual-level and environmental variables are taken into account (Model 5). While both individual-level variables have a positive effect on entrepreneurial intentions, the marginal effect is almost twice as high for self-efficacy as for the presence of an entrepreneurial role model.

In addition, we find evidence for an interaction effect between self-efficacy and availability of role models (*Hypothesis 2*). The positive effect of self-efficacy on entrepreneurial intentions is 2.6 percentage points (Model 5) lower for those individuals who know an entrepreneurial role model than for those who don't (knowent x suskill).

Table 3
Estimation results for *Entrepreneurial intentions*. Multi-level random intercept logistic model.

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variables	**Coefficient**	**Marginal Eff.**	**Coefficient**	**Marginal Eff.**	**Coefficient**	**Marginal Eff.**	**Coefficient**	**Marginal Eff.**	**Coefficient**	**Marginal Eff.**
Individual-level										
suskill	1.206***	0.1609	1.135***	0.1391	1.134***	0.1296	1.134***	0.1305	0.996***	0.1136
	(0.0248)	0.0149	(0.0264)	0.0111	(0.0264)	0.0088	(0.0264)	0.0096	(0.0720)	0.0109
knowent	0.891***	0.1324	0.686***	0.0916	0.686***	0.0847	0.686***	0.0851	0.518***	0.0633
	(0.0215)	0.0110	(0.0224)	0.0069	(0.0224)	0.0057	(0.0224)	0.0061	(0.0882)	0.0116
fearfail			-0.210***	-0.0269	-0.210***	-0.0250	-0.210***	-0.0251	-0.213***	-0.0254
			(0.0235)	0.0035	(0.0235)	0.0031	(0.0235)	0.0032	(0.0235)	0.0032
opport			0.616***	0.0789	0.616***	0.0732	0.615***	0.0734	0.607***	0.0727
			(0.0226)	0.0058	(0.0226)	0.0048	(0.0226)	0.0052	(0.0225)	0.0049
age			0.00156	0.0002	0.00156	0.0002	0.00159	0.0002	0.00178	0.0002
			(0.00534)	0.0007	(0.00534)	0.0006	(0.00534)	0.0006	(0.00534)	0.0006
age^2			-0.000394***	-0.0001	-0.000393***	0.0000	-0.000393***	0.0000	-0.000393***	0.0000
			(6.44e-05)	0.0000	(6.44e-05)	0.0000	(6.44e-05)	0.0000	(6.43e-05)	0.0000
male			0.279***	0.0357	0.279***	0.0332	0.279***	0.0333	0.273***	0.0327
			(0.0235)	0.0038	(0.0235)	0.0033	(0.0235)	0.0035	(0.0235)	0.0034
education - *some secondary*			0.112**	0.0143	0.113**	0.0134	0.113**	0.0134	0.130***	0.0155
			(0.0461)	0.0060	(0.0461)	0.0055	(0.0461)	0.0056	(0.0460)	0.0056
education - *secondary*			0.211***	0.0270	0.213***	0.0253	0.213***	0.0255	0.225***	0.0269
			(0.0426)	0.0057	(0.0426)	0.0053	(0.0427)	0.0053	(0.0425)	0.0053
education - *post secondary*			0.275***	0.0351	0.277***	0.0329	0.277***	0.0331	0.289***	0.0346
			(0.0448)	0.0062	(0.0447)	0.0056	(0.0448)	0.0057	(0.0447)	0.0057
education - *graduate level*			0.460***	0.0588	0.463***	0.0550	0.463***	0.0552	0.449***	0.0537
			(0.0806)	0.0110	(0.0806)	0.0100	(0.0806)	0.0102	(0.0805)	0.0101
occupation - *part-time employment*			0.228***	0.0291	0.228***	0.0271	0.228***	0.0272	0.236***	0.0282
			(0.0391)	0.0053	(0.0391)	0.0049	(0.0391)	0.0049	(0.0391)	0.0050
occupation - *retired or disabled*			-0.309***	-0.0396	-0.310***	-0.0368	-0.310***	-0.0369	-0.294***	-0.0352
			(0.0602)	0.0081	(0.0602)	0.0074	(0.0602)	0.0075	(0.0601)	0.0075
occupation - *full-time home maker*			0.133***	0.0170	0.132***	0.0157	0.131***	0.0157	0.116***	0.0139
			(0.0435)	0.0057	(0.0435)	0.0052	(0.0435)	0.0053	(0.0435)	0.0053
occupation - *student*			0.252***	0.0323	0.252***	0.0300	0.252***	0.0301	0.246***	0.0295
			(0.0493)	0.0066	(0.0493)	0.0061	(0.0493)	0.0062	(0.0494)	0.0061
occupation - *not working or others*			0.512***	0.0655	0.512***	0.0608	0.512***	0.0611	0.514***	0.0615
			(0.0370)	0.0063	(0.0370)	0.0055	(0.0370)	0.0058	(0.0371)	0.0057
occupation - *self-employed*			-0.102***	-0.0131	-0.103***	-0.0122	-0.103***	-0.0123	-0.0979***	-0.0117
			(0.0332)	0.0043	(0.0332)	0.0040	(0.0332)	0.0040	(0.0330)	0.0040

	Model 1		Model 2		Model 3		Model 4		Model 5	
Variables	**Coefficient**	**Marginal Eff.**	**Coefficient**	**Marginal Eff.**	**Coefficient**	**Marginal Eff.**	**Coefficient**	**Marginal Eff.**	**Coefficient**	**Marginal Eff.**
Country-level										
idv					-0.0189***	-0.0022	-0.0103	-0.0012	-0.0197***	-0.0024
					(0.00495)	0.0006	(0.00768)	0.0009	(0.00763)	0.0009
gdppercap							-1.42e-05	0.0000	-1.46e-05	0.0000
							(1.51e-05)	0.0000	(1.48e-05)	0.0000
gdppercap_growth							0.0169	0.0020	0.0148	0.0018
							(0.0548)	0.0065	(0.0539)	0.0064
ruralpopulation							-0.0113	-0.0013	-0.0111	-0.0013
							(0.00922)	0.0011	(0.00906)	0.0011
distancetofrontier							-0.0148	-0.0018	-0.0150	-0.0018
							(0.0126)	0.0015	(0.0124)	0.0015
foreignownership							0.0833	0.0099	0.0863	0.0103
							(0.170)	0.0203	(0.167)	0.0200
primaryenroll							-0.00619	-0.0007	-0.00634	-0.0008
							(0.0168)	0.0020	(0.0165)	0.0020
secondaryenroll							-0.00194	-0.0002	-0.00239	-0.0003
							(0.0111)	0.0013	(0.0109)	0.0013
Interaction Terms										
knowent X suskill									-0.219**	-0.0255
									(0.101)	0.0116
knowent X idv									0.0101***	0.0012
									(0.00179)	0.0002
suskill X idv									0.00726***	0.0009
									(0.00144)	0.0002
knowent X suskill X idv									-0.00354*	-0.0004
									(0.00204)	0.0002
Constant	-2.635***	-0.0331	-2.459***	-0.103	-1.627***	-0.263**	0.0469	-0.315***	0.389	-0.332***
	(0.150)	(0.118)	(0.181)	(0.119)	(0.273)	(0.120)	(2.451)	(0.120)	(2.410)	(0.120)
Random effects parameter										
Number of observations	86,507		86,507		86,507		86,507		86,507	
Number of country groups	43		43		43		43		43	
Variance of random intercept	0.9674		0.9020		0.7686		0.7301		0.7174	
sd of variance of random intercept	0.1141		0.1069		0.0919		0.0877		0.0864	
Model Fit Statistics										
Wald X^2	4781.59		6972.18		6986.53		6991.98		6876.8	
Log Likelihood	-30316.86		-28574.35		-28568.08		-28566.05		-28481.12	
AIC	60641.71		57186.70		57176.16		57186.09		57024.25	
Likelihood Ratio Test of rho = 0	10777.27		8001.47		5474.09		3963.95		3848.13	

Coefficients and marginal effects are reported for the logistic multi-level random intercept model.Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Regarding the anticipated relationship between individualistic values and entrepreneurial intentions (*Hypothesis 3*), we establish that if a nation has a score of 90 rather than 50 on the Hofstede's individualism-collectivism measure, the negative and significant effect on entrepreneurial intentions will be of (-0.0024x40= -0.096) 9.6 percentage points. The marginal effect is robust and it implies that entrepreneurial intentions are correlated with the distal socio-cultural context. The individualistic character of the socio-cultural context carries some positive forces for the entrepreneurial intentions, however. In particular, we confirm that individualism positively moderates the relationship between self-efficacy and entrepreneurial intentions (*Hypothesis 4*). Additionally individualism positively moderates the relationship between role models and entrepreneurial intentions, therefore lending no support to *Hypothesis 5*. Role models seam to enhance to a greater extent entrepreneurial intentions in more individualistic socio-cultural contexts (knowent x idv). In sum, although there are characteristics of the individualistic socio-cultural context that are limiting entrepreneurial intentions, both self-efficacy and role models are robust to them.

Moreover, the individualistic nature of the socio-cultural context affects the interplay between self-efficacy and role models (knowent x suskill x idv) as drivers of entrepreneurial intentions (*Hypothesis 6*). This triple interaction effect cuts across the individual, proximate and distal contexts and magnifies the offsetting effect between role models and self-efficacy (knowent x suskill). The result is statistically significant at the 8 per cent level.

Turning to the control variables, we find that *Age* and all country-level control variables do not correlate with entrepreneurial intentions. *Fear of failure*, being a retiree and self-employed correlates negatively with entrepreneurial intentions. All other occupational categories as well as being a male, having accomplished higher education

levels and sharing a positive perception of opportunity in the near future, correlate positively with entrepreneurial intentions.

Furthermore, the results of the analyses reported in Table 3 indicate that the potential bias that might arise from the omission of variables, if there is any, should be modest. Altonji et al. (2005) and Oster (2013) show under the assumption of proportional selection that shifts in the coefficient of interest, with controls that rise concerns about omitted components, are revealing about the remaining bias. In particular, Oster (2013) proves that if the coefficient of interest does not change much after considering such controls, it is indicative of a limited bias.

Finally, the high level of correlation between two of the country-level variables, *Individualism* (idv) and *GDP per capita* (gdppercap) (Corr = 0.75) call attention to the challenges of simultaneously analyzing multiple country-level variables as this can generate inflated standard errors of the regression coefficients. Such problems appear to be modest in our case given the robust and statistically significant coefficients across different model specifications.

7. Discussion and conclusion

We contribute to the current literature on entrepreneurial intention-building by showing that the proximate and distal environment influence the way an individual's self-efficacy drives entrepreneurial intentions. We draw on the idea of a triadic reciprocality between individual behavior, personal characteristics, and environmental influences (Bandura & Wood, 1989; Bandura, 1986; Lent et al., 1994); the social embeddedness of economic behavior; and the separation between the proximate and distal social contexts (Johns, 2006; Mowday & Sutton, 1993; Williamson, 1998, 2000). We subscribe to the idea that national culture and the presence of role models separately influence the way self-efficacy affects an individual's intention to start a new business venture (Wennberg et al.,

2013). We theoretically advance this argument and provide evidence for cross-level effects.

Our results complement earlier research that shows role models exercise a positive influence on entrepreneurial intentions (Lafuente et al., 2007). We also show that a country's culture correlates to entrepreneurship but we cannot uphold the idea that higher levels of individualism translates into higher rates of entrepreneurship (Pinillos & Reyes, 2009). The significant interaction between the presence of a role model and individualistic social values provides first empirical evidence for Johns' (2006) approach of cross-level effects between the different layers of socio-cultural context. We conjectured that collectivistic countries favor relationship-building. However, as such these relationships can be understood as necessary and obligatory (Oyserman et al., 2002). In individualistic cultures, on the other side, relationships are assumed to operate on reciprocal basis and for the mutual benefit of the individuals involved (Triandis, 1995). Therefore, individuals may benefit to a greater extent from role models in more individualistic countries.

Our results underscore the views that cognitive mechanisms, such as self-efficacy, vary across proximate and distal socio-cultural contexts. We conjectured that role models mold self-perceptions as they provide a reference point for judgment. Arguably, at the stage of entrepreneurial intentions, the discovery of an opportunity is an individual mental process (Shane & Venkataraman, 2000) closely related to self-efficacy. Defined as judgments of perceived ability, self-efficacy may vary as a function of the information, learning and experience required and acquired (Gist & Mitchell, 1992), which at this stage is relatively low. When potential entrepreneurs witness the high failure rates and struggles of new business ventures, the positive effect that self-efficacy singlehandedly exerts on entrepreneurial intentions gets partially offset.

Our results extend earlier research where personal attitudes are stronger predictors of intentions in such contexts (Markus & Kitayama, 1991). We show that

individualistic values strengthen the positive impact of self-efficacy on entrepreneurial intentions. As discussed, the formation of self-efficacy is based on reference points. In individualistic countries, entrepreneurship is a socially desirable behavior and self-evaluations of individuals are based for the most part on personal achievements (Trafimow, Triandis, & Goto, 1991). These self-centered reference points are rather limited at this stage of the entrepreneurial process and consequently stimulate a positive self-assessment.

Our work is the first to address the amplifying effect that individualistic values exert on an individual's self-efficacy in the presence of a role model. Taken figuratively, the distal socio-cultural environment behaves as a magnifying glass for the interaction between personal characteristics and proximate cultural context in molding entrepreneurial intentions. While the effectiveness of such actions hinges ultimately on individual's self-efficacy and distal cultural context, initiatives that foster entrepreneurship should include exposure of individuals to entrepreneurial role models. As both policymakers and scholars share interest in identifying drivers of entrepreneurial intentions, uncovering the interactive nature of the proximate and distal contests is bound to attract more attention in the future.

We acknowledge that our investigation is not free of caveats and that many of the limitations of this study offer venues for future research. In particular, the use of rather simplistic measures of entrepreneurial role models and entrepreneurial self-efficacy can be subject to criticism. We are not able to infer from these measures whether the role model is successful or the nature of the relationship between the role model and the respondent (Gibson, 2004; Scherer et al., 1989). Additionally, we cannot control for similarities between the role model and the individual, a fact that has been argued to strongly influence the adoption of a specific behavior (Bandura, 1977).We also acknowledge that the complex and multi-dimensional nature of self-efficacy (Drnovšek,

Wincent, & Cardon, 2010) is not fully respected. Likewise, we adopted Hofstede (1980) measures of national culture, a framework that has been criticized for being overly simplistic.

Second, the data we are using does not allow uncovering the cognitive processes through which the traits of national culture influence human and social capital (Lim et al., 2010). Qualitative research may shed light on such individual cognitive mechanisms. Third, adopting an entrepreneurial process view and differentiating between different stages of entrepreneurial action, may allow further insights on how national culture influences individual cognitive structures when deciding to engage in entrepreneurial activity.

Fourth, omitted variables can also bias the results. For instance, recent research highlights the importance of individual's financial capital (Danis, De Clercq, & Petricevic, 2011), the individual's access to venture capital (Colombo & Grilli, 2010) as well as cultural capital (Elam & Terjesen, 2010) which are not included in this study. Eventually, the team nature of the entrepreneurial process is not accounted for.

While improvements in all these directions are welcome, there are venues for future research that appear to be particularly desirable. Studying local concentration of entrepreneurship (Minniti, 2005) and determinants of regionally and locally relevant entrepreneurial practices (Stenholm et al., 2013) connects entrepreneurship scholarship with the research and practice of economic development and competitiveness. The inclusion of interacting layers of contextual variables in this research line not only better informs the work of development agencies and policymakers; in light of the present research this will be necessary in the future.

In addition, a stronger focus on the contextual forces and cognitive processes of specific classes of entrepreneurs such as women (Koellinger, Minniti, & Schade, 2013; Langowitz & Minniti, 2007) or technological entrepreneurs (Marvel & Lumpkin, 2007)

holds the potential to provide the levers for fine tuning that would enable targeted entrepreneurial initiatives. The study of all these questions at later stages of the entrepreneurial process calls for further investigation.

It is our understanding that entrepreneurship cannot be comprehended and much less purposefully influenced without proper understanding of the interactive layers of proximate and distal contexts that enable and constrain this process. A theoretically-driven empirical estimation that can show that the interactions of proximate and distal factors generate nontrivial effects on entrepreneurial intentions would have significant scholarly and practical merit. To that end, we have studied the interplay between the individualism-collectivism orientation of national culture, the incidence of entrepreneurial role models and self-efficacy understood as the perception of possessing relevant skills and knowledge to become a successful entrepreneur. We establish that exposure to entrepreneurial role models offsets self-efficacy as a driver of entrepreneurial intentions and that the effect is magnified by the individualistic character of the national culture. These insights extend and deepen our understating about drivers of entrepreneurial intentions, pose some new questions and give rise to puzzling trade-offs among drivers of entrepreneurial intentions.

We believe that both the novelty as well as the practical implications of this research will provide scholars with answers to open questions and will give policy makers actionable knowledge.

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Appendix 1

Country	N	Perc. (in %)	Cum. Perc. (in %)	Country	N	Perc. (in %)	Cum.Perc. (in %)
Argentina	2,001	1.27	1.27	Korea South	1,992	1.26	36.86
Belgium	3,962	2.51	3.78	Latvia	1,990	1.26	38.12
Bosnia and Herzegovina	1,916	1.21	4.99	Lebanon	1,958	1.24	39.36
Brazil	1,991	1.26	6.25	Malaysia	1,984	1.26	40.61
Chile	4,961	3.14	9.39	Morocco	1,491	0.94	41.56
China	3,413	2.16	11.55	Netherlands	2,979	1.89	43.44
Colombia	2,041	1.29	12.84	Norway	1,981	1.25	44.7
Croatia	1,978	1.25	14.1	Panama	1,993	1.26	45.96
Denmark	2,000	1.27	15.36	Peru	1,984	1.26	47.21
Ecuador	2,187	1.38	16.75	Romania	2,039	1.29	48.5
Finland	1,963	1.24	17.99	Russia	1,668	1.06	49.56
France	1,999	1.27	19.25	Saudi Arabia	1,996	1.26	50.82
Germany	5,998	3.8	23.05	Serbia	2,275	1.44	52.27
Greece	1,938	1.23	24.28	Slovenia	2,962	1.88	54.14
Guatemala	2,165	1.37	25.65	South Africa	3,116	1.97	56.11
Hong Kong	1,980	1.25	26.9	Spain	28,813	18.24	74.36
Hungary	1,986	1.26	28.16	Switzerland	2,000	1.27	75.62
Iran	3,213	2.03	30.2	UK	29,924	18.95	94.57
Israel	2,000	1.27	31.46	U.S.A.	4,986	3.16	97.72
Italy	2,951	1.87	33.33	Uruguay	1,973	1.25	98.97
Jamaica	1,980	1.25	34.58	Venezuela	1,621	1.03	100
Japan	1,597	1.01	35.59	**Total**	**56,220**		